

PATENT SPECIFICATION



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COMPLETE SPECIFICATION

Improvements in Storage Chambers for Maintaining Food and other Goods at Desired Temperatures

We, XTRAVAC LIMITED, a Company duly organized and existing under the Laws of the Dominion of New Zealand, of 64, Yorkshire House, 27—31, Shortland Street, Auckland, in the Dominion of New Zealand, Manufacturers, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has been devised with the object of providing a new construction of storage chamber for the reception of food and other commodities, in which the features of construction are such as to permit of the temperature of the interior storage space of the chamber being regulated to any desired degree and then maintained at such temperature by the insulation of the chamber from outside temperature conditions.

The invention therefore is adapted to food storage chambers in which the food commodities are designed to be preserved by the maintenance of low temperature conditions, or in which the commodities are designed to be treated by dehydration or thawing out processes through their subjection to temperatures suitable for such purposes, over any desired period of time.

It has previously been proposed to provide a storage chamber which is surrounded by three concentric chambers or jackets, the outer chamber of which is provided with a pipe connection through which the air is exhausted therefrom, whilst the two inner chambers communicate with each other through an aperture provided in the bottom dividing wall between the two chambers and have pipe connections through which liquified air or other liquified gas may be circulated; also the storage chamber is provided with a pipe connection through which the air may be evacuated, the whole of said pipe connections being disposed at the top of the chambers.

It has also been proposed to provide a cooling or heating chamber in which the walls are double jacketed, hot or cold water or air or other medium being

introduced at one end or side, circulated through the inner jacket and passed out at the other end or side, and the outer jacket is exhausted by suitable means to maintain a vacuum therein.

According to the present invention the storage chamber is formed by the combination with a wall-enclosed storage space, of two surrounding jackets only, namely an inner jacket space surrounding such enclosure and having pipe connections for the introduction or circulation of a fluid temperature producing medium, and an outer jacket space surrounding the inner jacket and having a valve controlled connection for the creation of vacuum conditions therein and valve controlled connections communicating with the storage space for the creation of vacuum conditions therein and for the breaking down of such vacuum.

This chamber is adaptable for construction in small or large sizes according to the capacity desired, and may also be made as a stationary or transportable unit, according to the manner of its uses.

The detail features of construction of the chamber will be adapted to suit the different circumstances concerned with size and purposes and other requirements. Also the materials employed, areas of spaces and the strengths of the different parts of the structure, are capable of variation in a large number of ways.

In fully describing the invention therefore, it will be described in respect of the broad principles of the construction designed, and with regard to the accompanying diagrammatic drawings, in which:—

Figure 1 is a front view of the storage chamber.

Figure 2 is a sectional side elevation thereof.

Figure 3 is a sectional plan thereof.

In giving effect to the invention, a central storage space A is provided, such having walls B made of any suitable material, arranged to enclose a space of any desired shape and capacity. This

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space is formed with an access opening in the front that is covered by a door C suitably hinged to open and close, as by means of the form of hinges D shown in the drawings. This door is preferably made of an insulated nature as for instance by forming it with the doubled walls, as shown, the space between which may be placed in a vacuum condition or may be packed with a suitable heat insulating material. The door also is made to form an airtight enclosure, as by providing a strip E of rubber packing between its overlap with the chamber front.

A jacket wall F is arranged to extend around the storage space walls B at a distance therefrom such as to leave a clear space G between them. This jacket is, in turn, surrounded by an outside jacket H arranged to leave a clear space J all round it, the door opening and door of the space A being left free. These jacket walls are suitably stayed upon each other and upon the chamber A so that the jacket spaces are maintained under all the conditions characteristic of their respective functions, and are made of the strengths necessary to withstand the external and internal pressures produced in the jacket spaces.

The outside jacket H has a valve controlled pipe K opening through it into the space J within, through which pipe connection may be made with any approved means for the exhaustion of the air from this space, the vacuum conditions thus obtained being then maintained by the closing of the pipe.

The storage space A also may have a valve controlled pipe M opening into its top to provide for the production of vacuum conditions in this space, should such be desired for the preservation of its stored contents. It is provided at its bottom with an air inlet valve N for the purpose of breaking down any vacuum that may thus be produced, and thereby to permit of the door being opened.

The inner jacket space G is provided

with an inlet pipe O opening into its top and an outlet pipe P opening from its bottom. These are provided to permit of any desired temperature influencing medium being caused to enter, or to pass through, this space in order to produce any specific temperature conditions within the storage space. For instance, for cooling purposes cold brine or cold air or gases may be caused to flow through the space, while for warming purposes heated air or hot water may be caused to circulate therein, in each instance until the desired temperature has been obtained. The vacuum jacket then will serve to maintain this temperature in the well known manner characteristic of vacuum insulation.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A storage chamber formed by the combination with a wall-enclosed storage space of two surrounding jackets only, namely an inner jacket space surrounding such enclosure and having pipe connections for the introduction or circulation of a fluid temperature producing medium, and an outer jacket space surrounding the inner jacket and having a valve controlled connection for the creation of vacuum conditions therein, and valve controlled connections communicating with the storage space for the creation of vacuum conditions therein and for the breaking down of such vacuum.

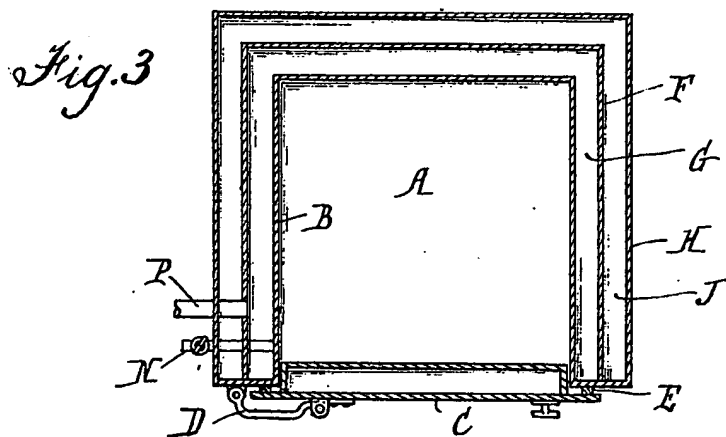
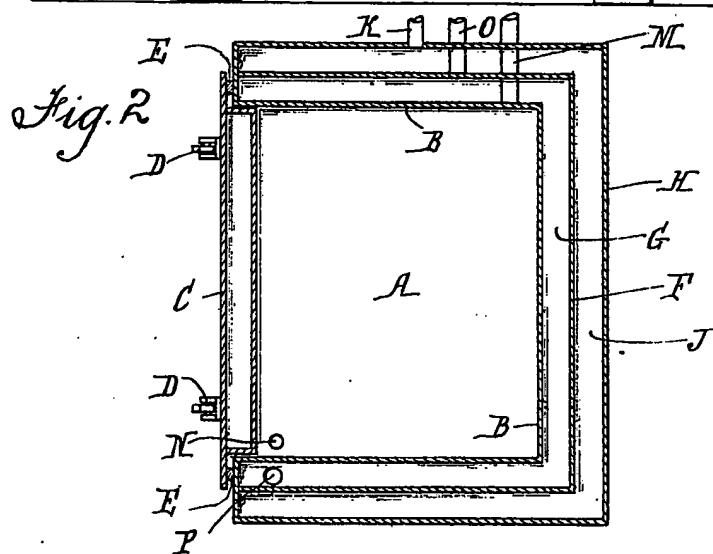
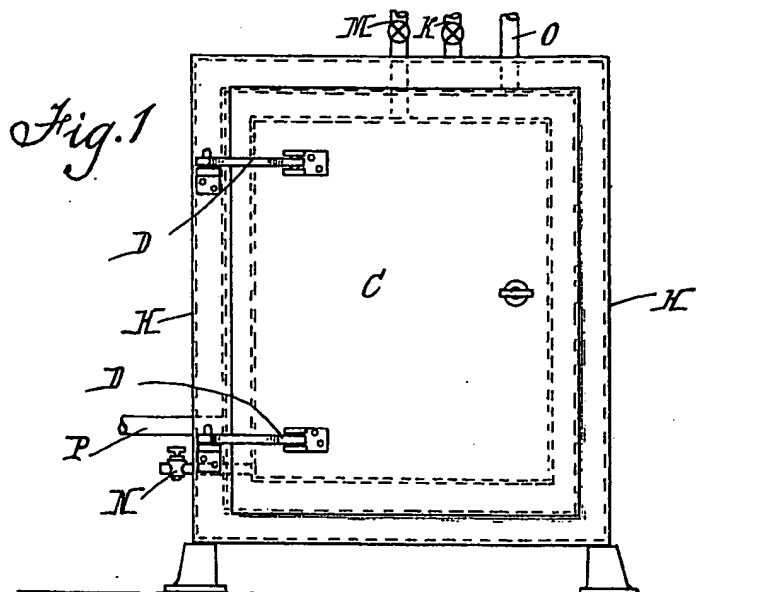
2. A storage chamber made according to Claim 1. in which the said storage space is formed with an access opening and is provided with a door adapted to close and seal such opening and which door is of heat insulated nature.

Dated this 29th day of June, 1934.

PHILLIPSS,

Chartered Patent Agents,
70, Chancery Lane, London, W.C.2,
For the Applicants.

[This Drawing is a reproduction of the Original on a reduced scale.]



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